

WHAT IS CLAIMED IS:



1-6 (canceled).

7. (currently amended) An optical fiber as in claim 1, said fiber having a core and a sheath, said fiber having at least one parameter that varies from an input end of said fiber to an output end thereof in a manner to maintain a constant power loss per unit length over the length of said fiber wherein said sheath includes a cladding and wherein said one parameter comprises the core/cladding refractive index ratio.

8. (currently amended) An optical fiber as in claim 1, said fiber having a core and a sheath, said fiber having at least one parameter that varies from an input end of said fiber to an output end thereof in a manner to maintain a constant power loss per unit length over the length of said fiber wherein said one parameter comprises an increase in the absorption coefficient of said fiber from said input end to said output end.

9-16 (canceled)

17-18 (canceled)

19. (currently amended) An optical fiber as in claim 17, said fiber having a core and a cladding, said cladding being fabricated to be sensitive to a physical quantity, said fiber having at least one parameter that varies from an input end to an output end in a way calculated to make the power loss vary in a controlled way over the length of the fiber wherein said one parameter comprises the core/cladding refractive index ratio.

20. (currently amended) An optical fiber as in claim 17, said fiber having a core and a cladding, said cladding being fabricated to be sensitive to a physical quantity, said fiber having at least one parameter that varies from an input end to an output end in a way calculated to make the power loss vary in a controlled way over the length of the

fiber wherein said one parameter comprises an increase in the scattering coefficient of said fiber from said input end to said output end.

21. (original) A distributed fiber optic sensor comprising a multi-mode fiber having a core and a permeable cladding, said cladding including a composition responsive to an external material to generate a light signal characteristic of that response, said fiber having at least one parameter that varies as a function of position within the fiber to compensate for any non-linear power loss over the length of said fiber.

22. (original) An optical fiber as in claim 21 wherein said one parameter comprises an increase in the diameter of said core from said input end to said output end.

23. (original) An optical fiber as in claim 21 wherein said one parameter comprises the core/cladding refractive index ratio.

24. (original) An optical fiber as in claim 21 wherein said one parameter comprises an increase in the absorption coefficient of said fiber from said input end to said output end.

25. (original) An optical fiber as in claim 21 wherein said composition is characterized by an increase in scattering coefficient from an input to an output end of said fiber.

26. (original) An optical fiber as in claim 21 including a light sensor at an output end thereof.

27. (previously presented) An output fiber as in claim 26 said fiber having a light source at an input end thereof.